

Lower Snake Temperature Management

July 9, 2007

- General Observations
 - Lower Granite Pool
 - Temperature in Snake River at Lower Granite 19.7 °C (67.4 F)
 - Temperature of flow weighted inflow $T_{crit} = 18.4$ °C
 - T_{crit} dropped below 18.5 °C on July 3
 - Heat gain in LWG pool 0.9-1.3 C
 - Travel time in LWG pool 5.0 days
 - Density stratified flow / underflow reducing time of travel
 - Snake River at Anatone $Q_{5d} = 19.6$ kcf, $T_{5d} = 22$ °C (71.6 F)
 - Clearwater River
 - Dworshak $Q_{5d} = 10.8$ kcf, $T_{5d} = 6.5$ °C (43.7 F)
 - Orofino $Q_{5d} = 3.8$ kcf, $T_{5d} = 23.6$ °C (74.5 F)
 - Lewiston $T_{5d} = 13.3$ C (56 F)
 - Flow ratio $Q_{cr} / Q_{sr@lwg} = 42\%$

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- Forecasts
 - Weather (NOAA)
 - Very Hot Temperatures predicted for later this week at Lewiston ID
 - July 9 10 11 12 13 14 15
 - Mon Tue Wed Thu Fri Sat Sun
 - Highs 95 96 101 107 110 99 97
 - Lows 65 65 65 67 71 68 66
 - Hourly weather data from 2006 for July 16-31
 - Flows
 - Clearwater River at Orofino (STP) falling from 3.4 to 2.7 kcfs by July 15
 - Snake River at Anatone (STP) falling from 20.2 to 18.5 by July 15
 - Dworshak Operations (1994-avg inflow 1.4 kcfs Sept. 1)
 - 54 days before Sept 1 – 5 days@12 kcfs and 49 days @ 9.5 kcfs =1535 ft
 - Base Plan 12 kcfs through July 13, 9.5 July 14-31
 - Alternative 1 12 kcfs through July 9, 9.5 July 10-20, 12 kcfs July 21-24
 - Temperatures Boundary Conditions at Anatone and Orofino 2006

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- Results of CEQUAL-W2 simulation (June 1-July 31 simulation)
 - Base Condition
 - SR Temps near 20°C at LWG next two days
 - Cooling trend July 10-11
 - Warming trend returning to 20 C by July 17-18
 - Second Hot spike in temperatures on July 21
 - Limited to PH capacity resulting in temperature > 21 C
 - Alternative 1
 - Warmer temperatures July 13-16 compared to base condition
 - Up to 0.75 °C warmer
 - SR Temps > 20 C on July 14
 - Second Hot Spike moderated with 12 kcfs release

